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New bifunctional pnictogen compounds having ring-containing bridge, useful as ligands in Group VIII metal complex catalysts, especially for hydroformylation

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### Abstract of DE 10342760 (A1)

New pnictogen compounds (I) comprise two pnictogen (i.e. phosphorus, arsenic or antimony) atoms covalently bonded (optionally via oxygen) to the terminal flanking methylene groups of a bridge having at least 4 bridging atoms and forming part of an alicyclic or aromatic group. Pnictogen compounds of formula (I) are new, R<sub>1</sub> - R<sub>4</sub> = heteroatom-containing groups bonded to Pn via O or optionally substituted N; or R<sub>1</sub> - R<sub>2</sub> and/or R<sub>3</sub> + R<sub>4</sub> = divalent heteroatom-containing group bonded to Pn via two of O and/or optionally substituted N; a, b = 0 or 1; Pn = P, As and Sb; Ra - Rd = H, alky, cycloalkyl, heterocycloalkyl, aryl or heteroaryl; Y = a valence bridging group having 2-10 bridging atoms between the terminal bonds, at least two of the bridging atoms being part of an alicyclic or aromatic group. An independent claim is included for new catalysts (A) comprising at least one complex of a Group VIII transition metal (specifically cobalt, rhodium, ruthenium or iridium) containing at least one compound (I) as ligand.